PREDICTING URBAN GROWTH AREA BASED ON CELLULAR AUTOMATA CONCEPT

by :
Ms Shamsaini Shamsuddin
PhD Candidate
Department of Urban and Regional Planning
Faculty of Built Environment
University Technology Malaysia, Skudai, Johor.

Forecasting future urban growth and predicting future land use pattern and development is one of the main tasks in the process of urban and regional planning activity. The complexity of urban growth coupled with rapid urbanization that is occurring and shall continue to happen in developing country like Malaysia pose great challenges to planners in undertaking the mentioned task, especially to ensure that the objectives of sustainable development of cities and regions are met. Advancement in spatial modeling techniques and Geographical Information System (GIS) technology have enabled us to understand the complexities involve in predicting future urban areas and patterns in a more flexible and systematic manner. Cellular Automata concept is seen as a promising concept that has been successfully and widely applied in studies of predicting and simulating future urban land use area and pattern particularly in the developed countries. This concept is applied to the district of Seremban, Negeri Sembilan an area located within the enclave of the Kuala Lumpur Conurbation area as identified in the National Physical Plan. The resulted output shows the probability of areas within the study area that will turn into urban use and the alternative patterns of urban growth or expansion. Applying such modeling techniques can provide planners or urban managers and decision makers a clearer vision of the likely development or growth that will occur in the area under study. It also provides a stronger and systematic basis to evaluate and formulate the future development policy directions for the study area.